

What is claimed is:

1. A linear motor assembly, comprising:

opposing first and second magnet arrays;

an elongated first yoke adapted to receive the first magnet array;

5 an elongated second yoke adapted to receive the second magnet array; and

a central magnet array positioned between the elongated first and second yokes,

the central magnet array being adapted to slidably receive first and second coils on both sides of the central magnet array without a gap therebetween.

10 2. The linear motor assembly of claim 1, further comprising an elongated central yoke positioned between the elongated first and second yokes.

3. The linear motor assembly of claim 2, wherein the central magnet array is positioned on a first face of the elongated central yoke.

15 4. The linear motor assembly of claim 3, further comprising means for securing the central magnet array to the first face.

5. The linear motor assembly of claim 3, further comprising a second central magnet array positioned on a second face of the elongated central yoke.

6. The linear motor assembly of claim 5, further comprising means for securing the central magnet array to the second face.

20 7. The linear motor assembly of claim 3, further comprising a base plate coupled to the elongated first and second yokes; and means for securing the elongated central yoke to the base plate.

8. The linear motor assembly of claim 1, wherein each of said first and second magnet arrays comprises magnet elements being aligned in a row and positioned in alternating magnetic pole orientations.
9. The linear motor assembly of claim 1, further comprising a mover coupled to the first and second coils.
10. The linear motor assembly of claim 1, further comprising a base plate coupled to the elongated first and second yokes.
11. The linear motor assembly of claim 10, further comprising a first support arm coupled to the base plate, the support having a slot to slidably receive the elongated first yoke.
12. The linear motor assembly of claim 11, further comprising a second support arm coupled to the base plate, the support having a slot to slidably receive the elongated second yoke.
13. The linear motor assembly of claim 10, wherein the slot and the elongated first yoke have interlocking trapezoidal shapes.
14. The linear motor assembly of claim 10, wherein the slot is open-ended.
15. The linear motor assembly of claim 14, further comprising a plate to close the open-ended slot and to secure the first yoke to the first support arm.
16. The linear motor assembly of claim 15, further comprising means for securing the plate to the slot.
17. The linear motor assembly of claim 16, wherein the securing means secures the plate horizontally or vertically.

18. The linear motor assembly of claim 1, further comprising one or more additional dual stator assemblies, each comprising opposing third and fourth magnet arrays; third and fourth yokes adapted to receive the third and fourth magnet arrays; and a centrally positioned magnet array between the yokes.

19. The linear motor assembly of claim 1, wherein said magnet arrays includes at least eight magnets and wherein said magnetic flux path traverses through eight magnets in said single loop.

20. A linear motor, comprising:

first and second coil assemblies, each coil assembly formed from a plurality of coils;

opposing first and second magnet arrays;

an elongated first yoke adapted to receive the first magnet array;

an elongated second yoke adapted to receive the second magnet array; and

a central magnet array positioned between the elongated first and second yokes, the central magnet array being adapted to slidably receive the first and second coils on both sides of the central magnet array without a gap therebetween.